

								Industrial Worker Ambient Air Screening Level (Perimeter)	Short Term Screening Level (Perimeter)		
<b>Table 3. Extractive Sampling and Analysis</b>											
Analyte Name	Analyte Abbreviation	Reason for Measurement	Ambient Method	Media/Container	Sampling Times	Hold Time	DL/MRL	Fence Line Screening Level	Source for Screening Level	Fence Line Screening Level	Source for Screening Level
Acetylene	C <sub>2</sub> H <sub>2</sub>	Explosive/Toxic	EPA TO-3M	Summa Canister	7 hrs	Canister: 30 days	0.7 ppmv	2.5% v/v LEL	<a href="http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html">http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html</a>	2.5% v/v LEL	<a href="http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html">http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html</a>
Ammonia	NH <sub>3</sub>	Toxic	OSHA ID 188/164	Sorbent Tube (SKC-226-29)	3 hrs at 500 mL/min	14 days at 4°C	MRL=0.01 mg/sample; at 3 hr sampling time and 0.5 liter per minute 0.16 ppmv (0.111 µg/m <sup>3</sup> )	440 µg/m <sup>3</sup>	EPA Regional Screening Level (RSL) Summary Table April 2012, Industrial Air	1,180 µg/m <sup>3</sup>	EPA Acute Minimal Risk Level (MRL) <a href="http://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls_February_2012.pdf">www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls_February_2012.pdf</a>
Carbon Dioxide <sup>b</sup>	CO <sub>2</sub>	Asphyxiant	ASTM D1946/ EPA TO-3C M	Summa Canister	7 hrs	Canister: 30 days	<400 ppmv <sup>c</sup>	5,000 ppm, 9,000 mg/m <sup>3</sup>	OSHA, 1910.100 Table Z-1, 8 hour TWA	30,000 ppm 54,000 mg/m <sup>3</sup>	ACGIH Threshold Limit Value (TLV) Short Term Exposure Limit (STEL) 15-minute TWA
Hydrogen Fluoride	HF	Toxic	NMAM 7903	Sorbent Tube (SKC 226-10-03)	6 hrs at 300 mL/min	21 days at room temperature	3 µg/m <sup>3</sup> (MRL 0.53 µg/sample)	61 µg/m <sup>3</sup>	EPA Regional Screening Level (RSL) Summary Table April 2012, Industrial Air	820 µg/m <sup>3</sup>	Acute Exposure Guideline Level 1 (AEG1) (transient effects), 8-hr, <a href="http://www.epa.gov/oppt/aegl/pubs/compiled_aegls_nov072011.pdf">http://www.epa.gov/oppt/aegl/pubs/compiled_aegls_nov072011.pdf</a>
Hydrogen <sup>b</sup>	H <sub>2</sub>	Explosive	ASTM D1946/ EPA TO-3C M	Summa Canister	7 hrs	Canister: 30 days	0.15 % v/v	4.0% v/v LEL	<a href="http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html">http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html</a>	4.0% v/v LEL	<a href="http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html">http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html</a>
Hydrogen Cyanide	HCN	Toxic	NMAM 6010	Sorbent Tube (SKC 226-28)	6 hrs at 200 mL/min	14 days at room temperature	2 µg/m <sup>3</sup> (MRL 0.21 µg/sample)	3.5 µg/m <sup>3</sup>	EPA Regional Screening Level (RSL) Summary Table April 2012, Industrial Air	1,105 µg/m <sup>3</sup>	Acute Exposure Guideline Level 1 (AEG1) (transient effects), 8-hr, <a href="http://www.epa.gov/oppt/aegl/pubs/compiled_aegls_nov072011.pdf">http://www.epa.gov/oppt/aegl/pubs/compiled_aegls_nov072011.pdf</a>
Hydrogen Sulfide	H <sub>2</sub> S	Toxic	ASTM-D-5504-08	Summa Canister	4 hrs at 500 mL/min	24 hours	10 µg/m <sup>3</sup>	8.8 µg/m <sup>3</sup>	EPA Regional Screening Level (RSL) Summary Table April 2012, Industrial Air	97 µg/m <sup>3</sup>	EPA Acute Minimal Risk Level (MRL) <a href="http://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls_February_2012.pdf">www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls_February_2012.pdf</a>
Methane <sup>b</sup>	CH <sub>4</sub>	Explosive	ASTM D1946/ EPA TO-3C M	Summa Canister	7 hrs	Canister: 30 days	1,000 ppmv	5%v/v LEL	<a href="http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html">http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html</a>	5%v/v LEL	<a href="http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html">http://www.engineeringtoolbox.com/explosive-concentration-limits-d_423.html</a>
Nitrogen <sup>b</sup>	N <sub>2</sub>	Balance Gas	ASTM D1946/ EPA TO-3C M	Summa Canister	7 hrs	Canister: 30 days	1,000 ppmv	N/A	N/A	N/A	N/A
Oxygen <sup>b</sup>	O <sub>2</sub>	Asphyxiant	ASTM D1946/ EPA TO-3C M	Summa Canister	7 hrs	Canister: 30 days	1,000 ppmv	19.5% v/v	<a href="http://www.osha.gov/dte/library/respirators/major_requirements.pdf">http://www.osha.gov/dte/library/respirators/major_requirements.pdf</a>	if 19.5% v/v	<a href="http://www.osha.gov/dte/library/respirators.pdf">http://www.osha.gov/dte/library/respirators.pdf</a>
Phosphine	PH <sub>3</sub>	Toxic	OSHA 1003	SKC 225-9018, treated filter	4 hrs at 1,000 mL/min	17 days at room temperature	12 µg/m <sup>3</sup> using a 240 liter sample (1 liter per minute for 4 hrs) (MRL 5.5 µg/ sample)	1.3 µg/m <sup>3</sup>	EPA Regional Screening Level (RSL) Summary Table April 2012, Industrial Air	700 µg/m <sup>3</sup> max for 1-hr	ERPG (Emergency Response Planning Guidelines, American Industrial Hygiene Association) (AIHA 2002), <a href="http://www.nap.edu/catalog/12018.htm">http://www.nap.edu/catalog/12018.htm</a>

<sup>a</sup> All extractive sample analyses will be performed by ALS Environmental (formerly Columbia Analytical Services) Simi Valley, CA, with the exception of HCN, HF, and PH<sub>3</sub>, which will be performed by their Salt Lake City, UT laboratory.

<sup>b</sup> CH<sub>4</sub>, CO<sub>2</sub>, H<sub>2</sub>, N<sub>2</sub>, and O<sub>2</sub> can be analyzed concurrently in the same sample.

<sup>c</sup> Nominal value = 390 ppmv

CAS AQL Columbia Analytical Services, Air Quality Laboratory

DL/MRL Detection Limit/Method Reporting Limit; note: values are variable; the values given are the lowest levels reported by the laboratory based on the results of the September 2012 sampling

N/A Not applicable

NMAM NIOSH Manual of Analytical Methods

OSHA Occupational Safety and Health Administration